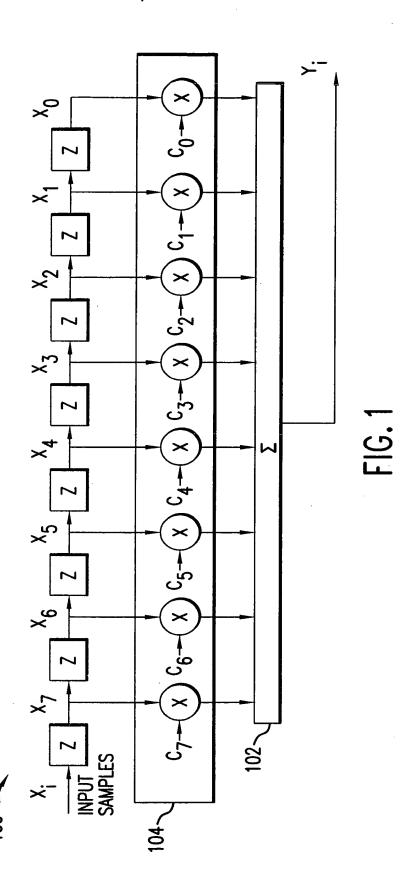
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Dkt No. 1744.1200001; Group Unit: 2124
Inventors: RAWLINS et al.
Tel. No.: 202-371-2600
For: Method and Apparatus for A Parallel Correlator and
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Applications Thereof

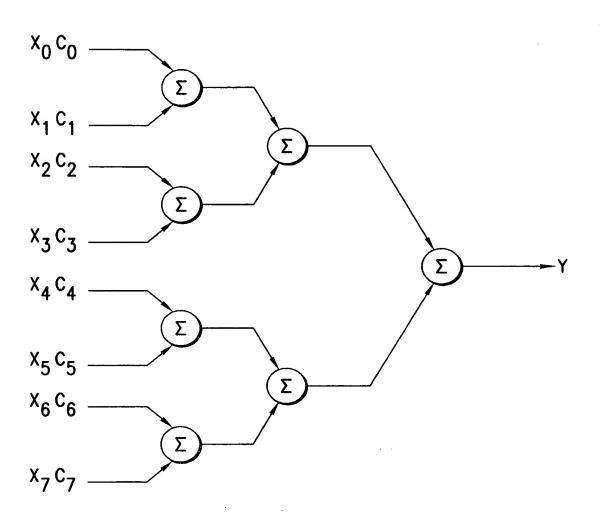


FIG. 2

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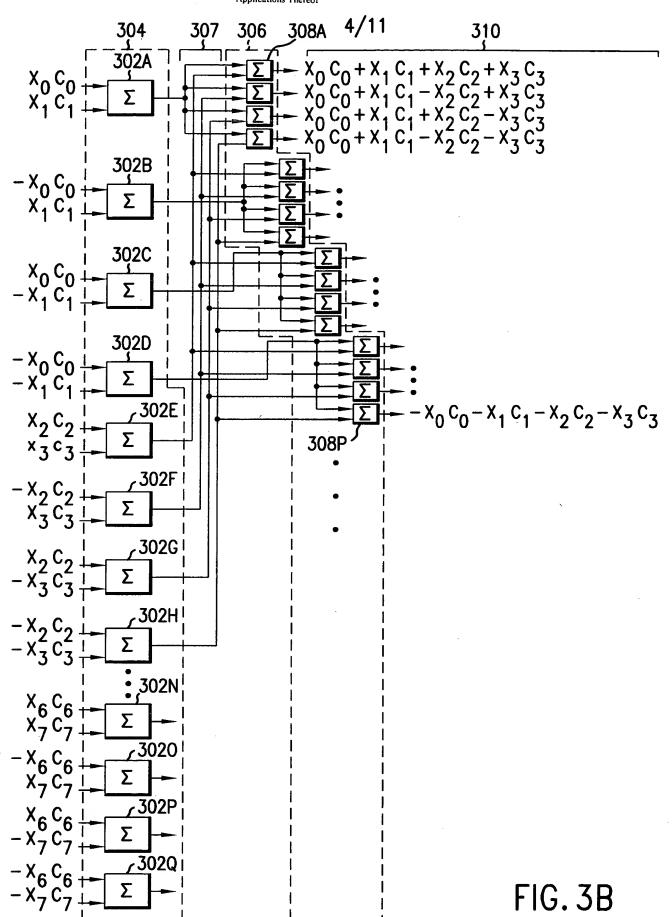
FIG. 3A

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Applications Thereof

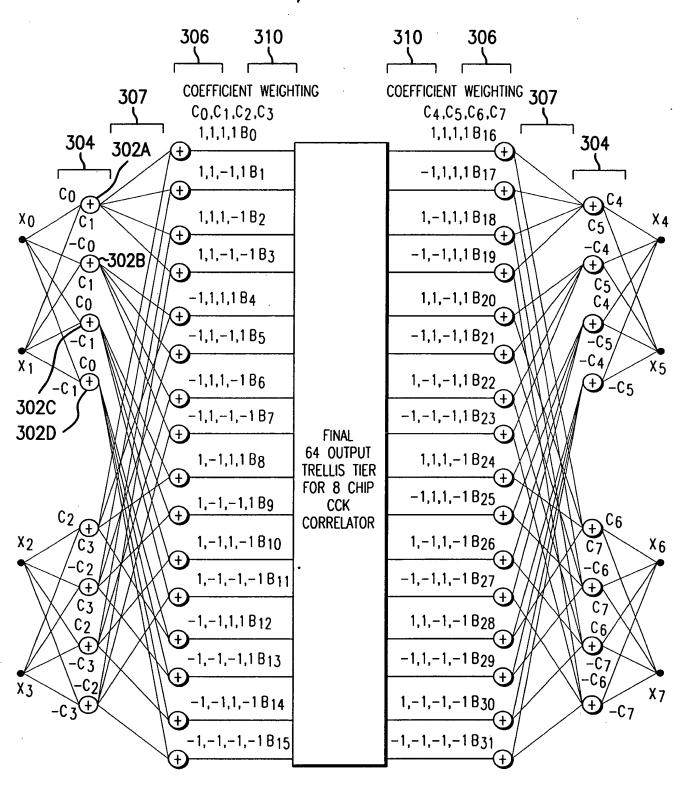


FIG. 3C

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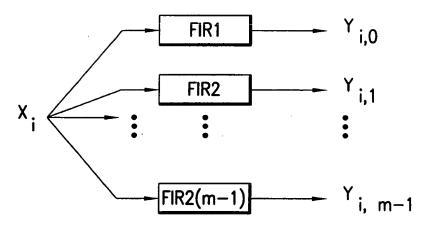


FIG. 4A

$$\begin{array}{c}
C \\
k, m-1
\end{array} = \begin{bmatrix}
C \\
0, 0 \\
0, 1
\end{bmatrix}$$

$$\begin{array}{c}
C \\
1, 0 \\
C \\
2, 0
\end{array}$$

$$\begin{array}{c}
C \\
k, 0
\end{array}$$

$$\begin{array}{c}
C \\
k, m-1
\end{array}$$

FIG. 4B

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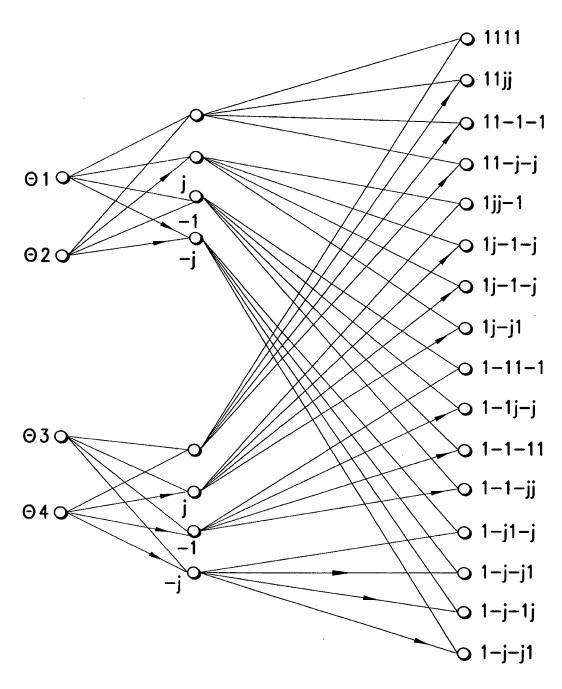
Dkt No. 1744.1200001; Group Unit: 2124

Inventors: RAWLINS et al.

Tel. No.: 202-371-2600

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PSK FAST HADAMARD TRANSFORM

FIG. 5

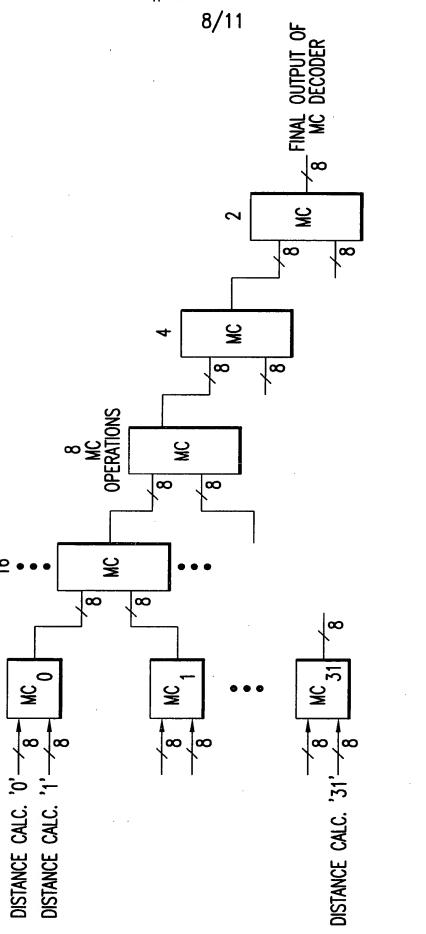
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Inventors: RAWLINS et al.

Tel. No.: 202-371-2600

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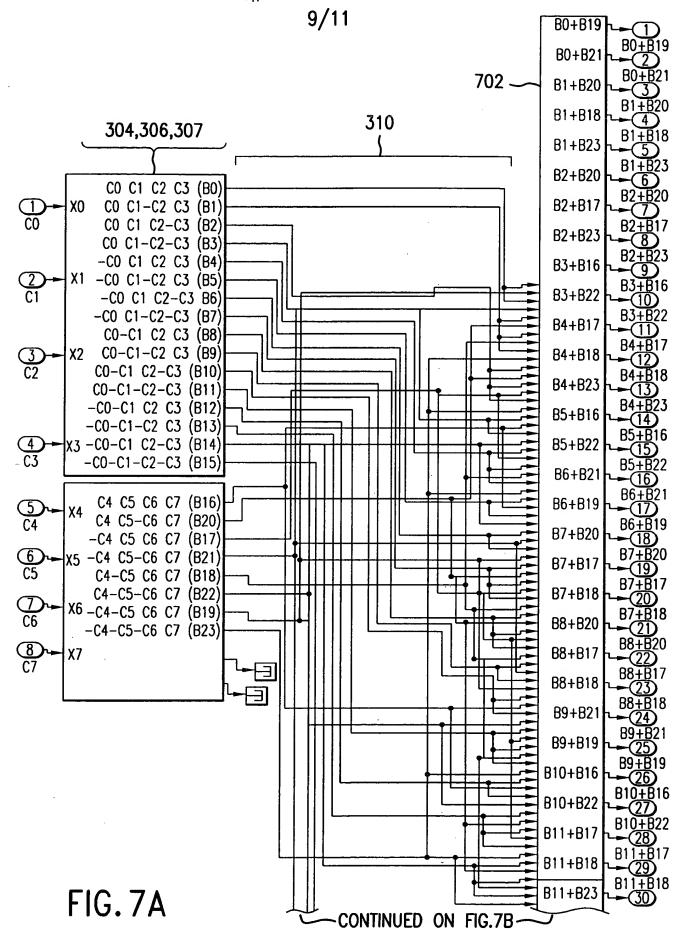
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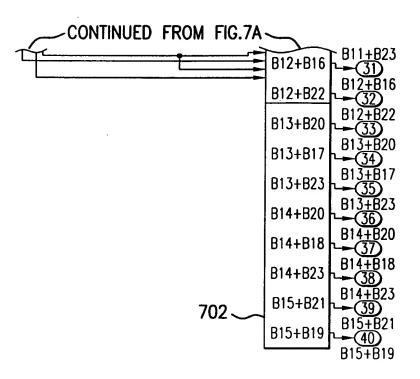


FIG. 7B

Appl. No. 09/987,193; Filed: Nov 13, 2001 Dkt No. 1744.1200001; Group Unit: 2124 Inventors: RAWLINS et al. Tel. No.: 202-371-2600 For: Method and Apparatus for A Parallel Correlator and Applications Thereof 11/11 800 -MULTIPLYING  $X_0$  WITH EACH STATE (C<sub>0(0)</sub> THROUGH C<sub>0(k-1)</sub>) OF THE COEFFICIENT Co, THEREBY GENERATING 802 RESULTS  $X_0 C_{0(0)}$  THROUGH  $X_0 C_{0(k-1)}$ . REPEATING STEP 802 FOR DATA BITS  $(X_1 - X_{M-1})$ AND CORRESPONDING COEFFICIENTS  $(C_1 - C_{M-1})$ , 804 RESPECTIVELY. GROUPING THE RESULTS OF STEPS 802 AND 804 INTO N GROUPS AND SUMMING COMBINATIONS WITHIN EACH 806 OF THE N GROUPS, THEREBY GENERATING A FIRST LAYER OF CORRELATION RESULTS. GROUPING THE RESULTS OF STEP 806 AND SUMMING COMBINATIONS OF RESULTS WITHIN EACH GROUP TO GENERATE ONE OR MORE ADDITIONAL LAYERS OF RESULTS. AND REPEATING THIS PROCESS UNTIL A 808 FINAL LAYER OF RESULTS INCLUDES A SEPARATE CORRELATION OUTPUT FOR EACH POSSIBLE STATE OF THE COMPLETE SET OF COEFFICIENTS  $(C_0 - C_{M-1})$ .

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FIG. 8

810·

COMPARING MAGNITUDES OUTPUT OF THE SEPARATE CORRELATION OUTPUTS, THEREBY IDENTIFYING A

MOST LIKELY CODE ENCODED ON SAID DATA WORD.